

Summary Report for Individual Task
551-88L-3065
Troubleshoot An Electrical Distribution System
Status: Approved

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD1 - The materials contained in this course have been reviewed by the course developers in coordination with the FT. LEE, VA 23801 foreign disclosure authority. This course is releasable to students from all requesting foreign countries without restrictions.

Condition: Assigned as a junior engineer, given a completed risk assessment, another engineer, vessel technical manual (TM), local Standing Operating Procedure (SOP), a vessel at sea, at anchor or moored alongside pier, personal protective equipment (PPE), lock out tag out kit, and a marine rail toolbox, day or night in all sea and weather conditions and all MOPP levels in an operational environment. Standard MOPP 4 conditions do not exist for this task. See the MOPP 4 statement for specific conditions.

Standard: On order, conduct troubleshooting procedures of an electrical distribution system in accordance with the TM without injury to personnel or damage to equipment. The vessel is fully mission capable at task completion.

Special Condition: None

Safety Risk: Low

MOPP 4: N/A

Task Statements

Cue: None

DANGER

ELECTRIC SHOCK HAZARDS. Electric powered equipment and lighting systems present a serious electric shock hazard. Do not be misled by the term "low voltage." Potentials as low as 50 volts may cause death under adverse conditions. Disconnect and tag power supply to equipment and lighting systems before servicing or perform maintenance. Avoid electrical shock by connecting all power tools and appliances to ground. , three prong electrical outlets. When working on electronic equipment, ground all capacitors after turning off power, and reduce the hazard of current flowing through the body by keeping one hand away from the equipment whenever possible. Remove rings and watches prior to performing maintenance or troubleshooting electrical equipment. Never work on electrical equipment alone, always have a second person.

WARNING

Death, serious injury, or equipment damage can result from contact with live electrical circuits. Before beginning work on this, or any other electrical equipment, turn power and control voltage circuit breakers OFF and tag "Out of Service - Do Not Operate."

Consider all electrical leads to be energized until positively proven they are deenergized.

CAUTION

Before inspection or any maintenance work is done, be sure that the breaker is in open position. All electrical power, both primary and control sources, should also be disconnected.

Remarks: None

Notes: None

Performance Steps

1. Comply with all safety procedures and precautions prior to troubleshooting electrical distribution system.
 - a. ensure switchboard and associated system are not in operation.
 - b. Deenergize power sources to panel and tag, "Out of Service-Do not Operate.
 - c. Position all circuit breakers on panel to OFF.
 - d. Verify Lockout/Tagout operations are IAW FM 4-01.502.
 - e. Select and use proper tools.

WARNING

Voltage dangerous to life exist when equipment is open and energized. Do not work alone.

2. Demonstrate knowledge for troubleshooting power distribution panels.



Distribution Panel

- a. No power.
 - (1) check for open circuit breaker.
 - (2) check for loose or broken electrical power cable.

(3) use a multimeter to check for broken electrical power cable between main switchboard and power distribution panel.

b. Flourescent, incandescent or floodlight does not work.

(1) check light bulb.

(2) check circuit breaker at power distribution panel.

(3) use a multimeter to check electrical power between power distribution panel and fixture.

(4) use a multimeter to check for power cable between main switchboard and power distribution panel.

3. Demonstrate knowledge for troubleshooting battery charger.



LaMarche Battery Charger

a. Charger operates, but will not charge the battery.

(1) Check the battery

(2) Check the surge suppressor

(3) Check for a defective cutout relay

(4) Defective control panel

b. Charger will not taper to a finishing rate.

(1) Check for defective batteries

(2) Check for defective control panel

4. Troubleshoot motor controllers with no power.

a. check for open fuse.

b. check for circuit breaker using multimeter.

c. check for loose or broken electrical power cables.

5. Troubleshoot electrical receptacle with no power output.

a. check receptacle contacts.

b. use a multimeter to check electrical power cable between power distribution panel and receptacle.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Score the Soldier a GO if all performance measures are correctly completed/pass (P). Score the Soldier a NO-GO if any of the performance measures are missed or incorrectly performed/fail (F).

Evaluation Preparation: Safety precautions must be adhered to when performing the task listed in the prescribed technical manual (TM). Remove all rings, watches, and jewelry. Ensure that all required equipment to perform this task is available. Brief Soldier to troubleshoot electrical distribution system.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Comply with all safety procedures and precautions prior to troubleshooting electrical distribution system.			
a. ensure switchboard an associated system are not in operation.			
b. Deenergized power sources to panel an tag, "Out of Service-Do not Operate."			
c. Position all circuit breakers on panel to OFF.			
d. Verify Lockout/Tagout operations are IAW FM 4-01.502.			
e. Select and use proper tools.			
2. Demonstrate knowledge for troubleshooting power distribution panels.			
a. No power			
b. Flourescent, incandescent or floodlights does not work			
3. Demonstrate knowledge for troubleshooting battery charger			
a. charger operates, but will not charge			
b. charger will not taper to a finishing rate.			
4. Troubleshoot motor controllers			
a. check for open fuse			
b. check circuit breaker			
5. Troubleshoot electrical receptacle			
a. check receptacle			
b. use a multimeter to check electrical power cable between power distribution panel and receptacle.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	TM 55-1905-223-24-18-1	UNIT, INTERMEDIATE DIRECT SUPPORT AND INTERMEDIATE GENERAL SUPPORT MAINTENANCE INSTRUCTIONS FOR LANDING CRAFT, UTILITY (LCU) BASIC CRAFT (PART 1) (NSN 1905-01-154-1191) (REPRINTED W/BASIC INCL C1-3) (THIS	Yes	Yes

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT. Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT. AR 200-1 delineates TRADOC responsibilities to integrate environmental requirements across DOTMLPF and ensures all training procedures, training manuals, and training doctrine includes sound environmental practices and considerations. The Army's environmental vision is to be a national leader in environmental and natural resource stewardship for present and future generations as an integral part of all Army missions. Environmental protection is never completed. Continuously be alert to ways to protect our environment and reduce waste. Leaders must ensure that their unit has an active and strong environmental program. They must understand the laws and know what actions to take. Leaders bring focus, direction, and commitment to environmental protection. Commanding officers should ensure the following environmental programs are in place and are being maintained: -Hazardous materials program. -Hazardous waste program. -Hazardous communications program. -Pollution prevention and hazardous waste minimization recycling program. -Spill prevention and response plan program.

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination. All operations will be performed to protect and preserve Army personnel and property against accidental loss. Procedures will provide for public safety incidental to Army operations and activities and safe and healthful workplaces, procedures, and equipment. Observe all safety and/or environment precautions regarding electricity, cable, and lines. Provide ventilation for exhaust fumes during equipment operation and use hearing protection when required IAW AR 385-10, the Clean Air Act (CAA) and the CAA amendments, and the OSHA Hazard Communication standard. Accidents are an unacceptable impediment to Army missions, readiness, morale, and resources. Decision makers at every level will employ risk management approaches to effectively preclude unacceptable risk to the safety of personnel and property affiliated with this task. (a) Take personal responsibility. (b) Practice safe operations. (c) Recognize unsafe acts and conditions. (d) Take action to prevent accidents. (e) Report unsafe acts and conditions. (f) Work as a team.

Prerequisite Individual Tasks : None

Supporting Individual Tasks : None

Supported Individual Tasks : None

Supported Collective Tasks :

Task Number	Title	Proponent	Status
55-2-1502	Conduct Watercraft Support Maintenance Operations	55 - Transportation (Collective)	Approved

ICTL Data :

ICTL Title	Personnel Type	MOS Data
88L40 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL4, Duty Pos: TGB, LIC: EN, SQI: O

88L30 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL3, Duty Pos: TFR, LIC: EN
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